

RESOLUTION COM4-6 (WRC-97)

**INFORMATION NEEDED FOR THE APPLICATION OF ARTICLE S12**

The World Radiocommunication Conference (Geneva, 1997),

*considering*

- a) that this Conference adopted Article S12 as a simple and flexible seasonal planning procedure for HF broadcasting based on coordination;
- b) that Article S12 responds to the intent of Resolution 508 (WARC-79) and Resolution 523 (WARC-92);
- c) that Article S12 makes reference to the Rules of Procedure,

*considering further*

that appropriate Rules of Procedure are to be developed by the Bureau and adopted by the Radio Regulations Board,

*instructs the Director of the Radiocommunication Bureau*

to consider the information contained in the Annex in developing the Rules of Procedure,

*urges administrations*

- 1 to support the Director of the Radiocommunication Bureau in the preparation of these Rules of Procedure and in the development and testing of any accompanying computer software;
- 2 to submit their schedules in a common electronic format to be defined in the Rules of Procedure,

*requests the Secretary-General*

to consider the provision of the necessary funding to enable developing countries to participate fully in the application of Article S12 and relevant radiocommunications seminars.

## **ANNEX TO RESOLUTION COM4-6 (WRC-97)**

This Annex responds to the need for information in the application of Article S12; the flowchart in Description 2 provides an overview of the Procedure.

### **1 Software development**

The Procedure will require a number of user-friendly software modules to be developed, tested and supplied to administrations by the Bureau. This will ensure that the same software modules are used by administrations and the Bureau for the analysis of the schedules.

The Bureau should:

- develop the aforementioned software with assistance from administrations;
- distribute the software, together with user instructions and relevant documentation;
- organize training in the use of the software;
- monitor the functional performance of the software and, if necessary, make necessary modifications.

### **2 Software modules**

#### **Data capture of requirements**

A new module will be required that permits the capture of all data elements detailed in Description 3. This module should also contain validation routines that prevent inconsistent data being captured and sent to the Bureau for processing.

#### **Propagation calculation**

This new module should calculate the field strength and other necessary data at all relevant test points as described in Descriptions 1 and 4.

It should also include an option that allows administrations to select the optimum frequency bands for their requirements.

The output format of the data and the medium should be such as to allow easy publication and distribution of the results to all administrations.

The results of these calculations should be displayable in a graphical format.

#### **Compatibility analysis**

This module should use the output of the propagation calculation to provide a technical analysis of a requirement both alone and in the presence of other requirements as in Description 4. This analysis would be used in the coordination process.

The values for the parameters given in Description 4 should be user selectable, but in the absence of other values the recommended default values should be used.

The results of this analysis should be capable of being displayed in a graphical format for a defined service area as in Description 4.

#### **Data query**

This module should enable the user to perform typical data query functions.

## SELECTION OF SUITABLE FREQUENCY BAND(S)

### General

In order to assist broadcasters and administrations in the preparation of their HF broadcasting requirements, the Bureau will prepare and distribute suitable computer software. This should be easy to use and the output should be easy to understand.

### User input data

The user should be able to enter:

- the name of the transmitting station (for reference purposes);
- the geographic coordinates of the transmitting station;
- the transmitter power;
- the bands which are available for use;
- hours of transmission;
- sunspot number;
- months during which a service is required;
- the available antenna types, together with the relevant directions of maximum radiation;
- the required coverage area specified as a set of CIRAF zones and quadrants (or by means of relevant geographic information).

It is desirable that the software should be able to store the above information, once it has been entered correctly, and provide the user with an easy means of recalling any previously entered information.

### Methodology and data

The software should use:

- Recommendation ITU-R BS.705 for the calculation of antenna patterns;
- Recommendation ITU-R P.533 for the prediction of wanted field strength values;
- Recommendation ITU-R P.842 for the calculation of reliability values.

The set of 911 test points (agreed at HFBC-87) should be used, supplemented where necessary with test points based on a geographic grid.

The software should calculate the field strength values and the fading margins at each test point inside the required service area for each of the frequency bands declared to be available, taking account of the relevant transmitting antenna characteristics for each frequency band. The desired RF signal-to-noise ratio should be user selectable with a default value of 34 dB.

The dates for which calculations are made should be user selectable, the default values being:

- 0.5 month after the start of the season;
- mid-point of the season;
- 0.5 month before the end of the season.

The times for which calculations are made should be user selectable, the default values being:

- 30 minutes past the hour in which the requirement starts;
- 30 minutes past each successive hour until the hour in which the requirement stops.

#### **Software output data**

For rapid assessment of suitable bands, the software should calculate:

- the basic service reliability (BSR) for each available band and for the relevant test points from the set of 911 test points;
- the basic area reliability (BAR) for each available band and for the relevant test points from the set of 911 test points.

In order to provide information about the geographic distribution of wanted signal values within the required service area, additional results should be available from the software:

- a listing should be available giving, for each of the available bands, the basic circuit reliability (BCR) for each of the test points (from the set of 911 test points) inside the required service area.

In some cases, a graphical display of the BCR values throughout the required service area may be desirable. These values should be calculated at test points at 2-degree intervals of latitude and longitude throughout the required service area.

The BCR values should be displayed graphically as a set of coloured or hatched "pixels" scaled in steps of 10 per cent. It should be noted that:

- reliability values relate to the use of a single frequency band;
- reliability values are a function of the desired RF signal-to-noise ratio (user selectable);
- the field strength values should be calculated by the supplied software on the user's own computer hardware. The software supplied should calculate the relevant reliability values based on these field strength values and the user-supplied desired signal-to-noise values.

## DESCRIPTION 2

### TIME SEQUENCE FOR THE PROCEDURE

In the sequence outlined below, the start date for a given schedule period is defined as D and the end date for the same schedule period is defined as E.

| Date       | Action  |
|------------|---|
| D-4 months | Closing date for administrations to send their schedules <sup>1</sup> to the Radiocommunication Bureau (Bureau), preferably by electronic mail or on 3.5" diskette (720 kbytes or 1.44 Mbytes). Schedule data will be made available via TIES as soon as it has been processed. |
| D-2 months | Bureau to send to administrations a consolidated schedule (the Tentative Schedule) together with a complete compatibility analysis <sup>2</sup> .   |
| D-2 weeks  | Closing date for receipt of amendments from administrations to correct errors and other changes resulting from the coordination process to ensure that this information appears in the Schedule for date D.   |
| D          | Bureau to issue the High Frequency Broadcasting Schedule and compatibility analysis.  |
| D to E     | Administrations to correct errors and coordinate in-season changes of requirements, sending information to the Bureau as it becomes available.<br><br>Bureau to issue updates of the Schedule and compatibility analysis at intervals of two months.                            |
| E          | Closing date for receipt of final operational schedules from administrations to Bureau. No input is needed if there have been no changes to the information previously sent.  |
| E+1 month  | Bureau to send to administrations the final consolidated schedule (the Final Schedule) together with a compatibility analysis.  |

Figure 1 shows, in flow chart form, the time sequence for the Procedure.

---

<sup>1</sup> See Description 3.

<sup>2</sup> See Description 4. The schedules and the results of the analyses should be available on CD-ROM and in TIES.

## Time sequence for the Procedure

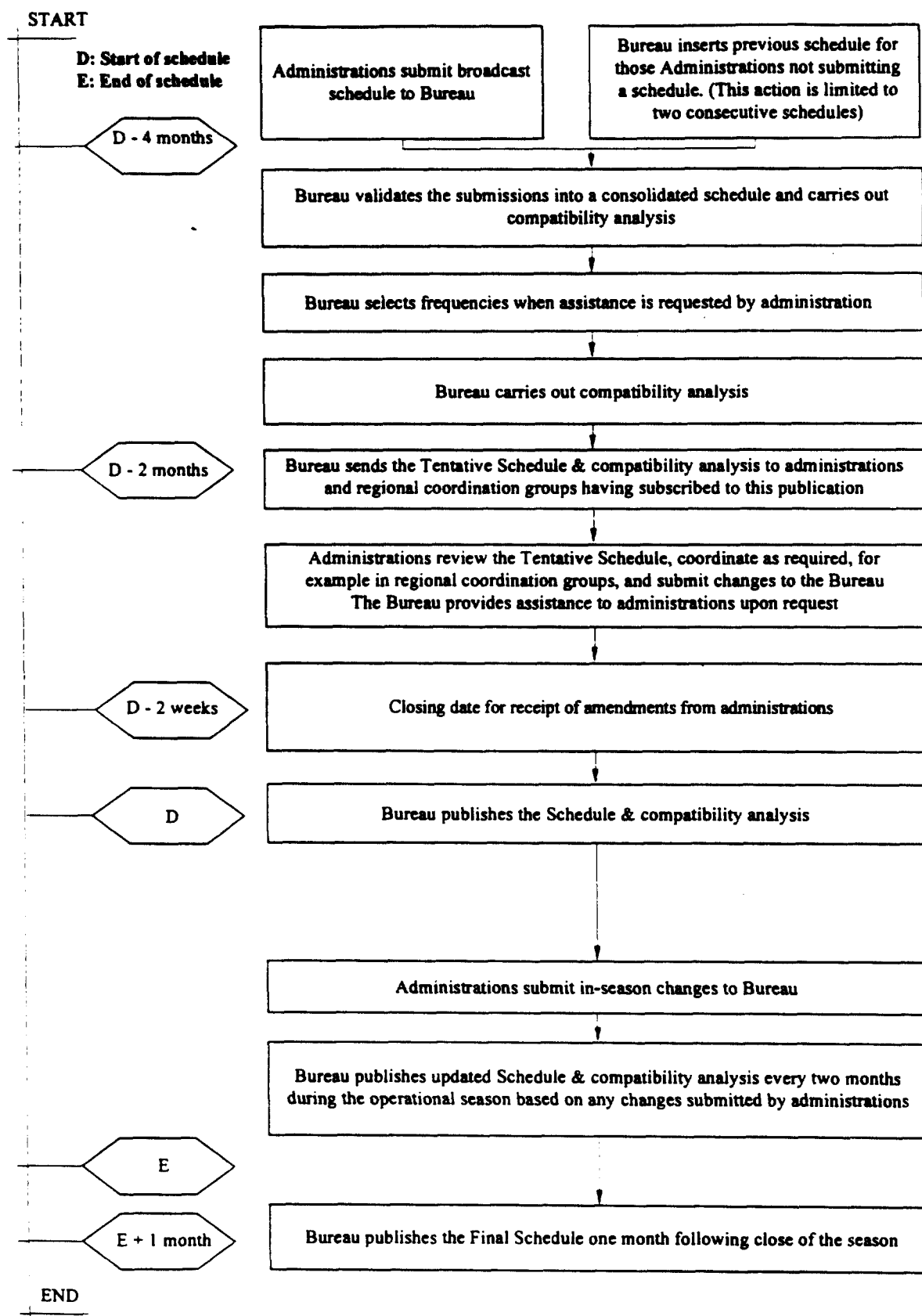


FIGURE 1

### DESCRIPTION 3

#### SPECIFICATION OF INPUT DATA FOR A REQUIREMENT

The fields needed for a given requirement and their specifications are:

- frequency in kHz, up to 5-digit integer;
- start time, as 4-digit integer;
- stop time, as 4-digit integer;
- target service area, as a set of up to 12 CIRAF zones and quadrants up to a maximum of 30 characters;
- site code, a 3-character code from a list of codes, or a site name and its geographic coordinates;
- power in kW, up to 4-digit integer;
- azimuth of maximum radiation;
- slew angle, up to 2-digit integer representing the difference between the azimuth of maximum radiation and the direction of unslewed radiation;
- antenna code, up to 3-digit integer from a list of values, or a full antenna description, as given in Recommendation ITU-R BS.705;
- days of operation;
- start date, in the case that the requirement starts after the start of the schedule;
- stop date, in the case that the requirement stops before the end of the schedule;
- modulation choice, to specify if the requirement is to use DSB or SSB (see Recommendation ITU-R BS.640). This field may be used to identify any other type of modulation when this has been defined for use by HFBC in an ITU-R Recommendation;
- administration code;
- broadcasting organization code;
- identification number;
- identification of synchronization with other requirements.

## DESCRIPTION 4

### COMPATIBILITY ANALYSIS

#### General

In order to assess the performance of each requirement in the presence of noise and of the potential interference from other requirements using the same or adjacent channels, it is necessary to calculate the relevant reliability values. To this end, the Bureau will prepare suitable software, taking account of user requirements in terms of desired signal-to-noise and signal-to-interference ratios.

#### Input data

The schedule for a given season - this may be either an initial consolidated schedule (to permit assessment of those requirements which need coordination) or the High Frequency Broadcasting Schedule (to permit assessment of the likely performance of requirements during the relevant season).

#### Methodology and data

The software should use:

- Recommendation ITU-R BS.705 for the calculation of antenna patterns;
- Recommendation ITU-R P.533 for the prediction of the wanted field strength values at each test point for each wanted requirement;
- Recommendation ITU-R P.533 for the prediction of the potentially interfering field strength values from all other co-channel or adjacent channel requirements at each test point for each wanted requirement;
- Recommendations 517 (HFBC-87) and ITU-R BS.560 for adjacent channel RF protection ratios;
- Recommendation ITU-R P.842 for the calculation of reliability values.

The set of 911 test points (agreed at HFBC-87) should be used, supplemented where necessary with test points based on a geographic grid.

The software should calculate the wanted and unwanted field strength values and the fading margins at each test point inside the required service area.

The desired RF signal-to-noise and RF protection ratios should be user selectable, the default values being 34 dB and 17 dB (co-channel case), respectively. The latter values should be used by the Bureau for its compatibility analyses.



The dates for which a compatibility analysis is made should be user selectable, the default values being:

- 0.5 month after the start of the season;
- mid-point of the season;
- 0.5 month before the end of the season.

These default values should be used by the Bureau for its compatibility analyses.

The times for which a compatibility analysis is made should be user selectable, the default values being:

- 30 minutes past the hour in which the requirement starts;
- 30 minutes past each successive hour until the hour in which the requirement ends.

These default values should be used by the Bureau for its compatibility analyses.

### Software output data

For rapid assessment of the performance of a requirement, the software should calculate:

- the overall service reliability (OSR) for the relevant test points from the set of 911 test points;
- the overall area reliability (OAR) for the relevant test points from the set of 911 test points.

In order to provide information about the geographic distribution of wanted and unwanted signal values for a given requirement, additional results should be available from the software:

- a listing should be available giving the overall circuit reliability (OCR) for each of the relevant test points from the set of 911 test points.

In some cases, a graphical display of the coverage achieved throughout a required service area may be desirable. These values will need to be calculated by the user (with the supplied software and on the user's own computer hardware) at test points at 2-degree intervals of latitude and longitude throughout the required service area. The values should be displayed graphically as a set of coloured or hatched pixels in steps of 10 per cent. It should be noted that:

- reliability values relate to the use of a single frequency;
- reliability values are a function of the desired RF signal-to-noise and RF protection ratios (both user selectable);
- the field strength values for the test points (from the set of 911 test points) inside the required service area should be calculated by the Bureau. The software supplied should calculate the relevant reliability values based on these pre-calculated field strength values and the user supplied desired signal-to-noise and signal-to-interference values;
- the field strength values for the test points at 2-degree intervals should be calculated using the supplied software on the user's own computer hardware. The software supplied should calculate the relevant reliability values based on these field strength values and the user-supplied desired signal-to-noise and signal-to-interference values.

**RESOLUTION COM4-7 (WRC-97)**

**USE OF FREQUENCY ADAPTIVE SYSTEMS IN THE MF/HF BANDS**

The World Radiocommunication Conference (Geneva, 1997),

*considering*

- a) that the efficiency of spectrum use will be improved by the use of frequency adaptive systems in the MF and HF bands shared by the fixed and the mobile services;
- b) that trials of frequency adaptive systems which have been undertaken during the past 20 years have demonstrated the feasibility of such systems and their improved spectrum efficiency;
- c) that such improved efficiency is attained through:
  - shorter call set-up and improved transmission quality by selection of the most suitable assigned channels;
  - reduced channel occupancy, permitting the same channels to be used by different networks, yet decreasing the probability of harmful interference;
  - minimization of the transmitter power required for each transmission;
  - continued optimization of the emissions owing to the sophistication of the systems;
  - simple operation by the use of intelligent peripheral equipment;
  - reduced need for skilled radio operators;
- d) that following Resolution 23 (WRC-95), the Bureau no longer undertakes examination with respect to the probability of harmful interference caused by new assignments recorded in the MIFR in the non-planned bands below 28 MHz;
- e) that frequency adaptive systems will actively contribute to the avoidance of interference since, when other signals are observed on the channel, the frequency adaptive system will move to another frequency,

*resolves*

- 1 that, in authorizing the operation of frequency adaptive systems in the MF/HF bands, administrations shall:
  - i) make assignments in the bands allocated to the fixed and mobile services;
  - ii) not make assignments in the bands:
    - allocated exclusively to the maritime or aeronautical mobile (R) services;
    - shared on a co-primary basis with the broadcasting service, radiodetermination service or the amateur services;
    - allocated to radio astronomy;

- iii) avoid use which may affect frequency assignments involving safety services made in accordance with Nos. S5.155, S5.155A and S5.155B;
  - iv) take into account any footnotes applicable to the proposed bands and the implications regarding compatibility;
- 2 that frequency adaptive systems shall automatically limit simultaneous use of frequencies to the minimum necessary for communication requirements;
  - 3 that, with a view to avoiding harmful interference, the system should evaluate the channel occupancy prior to and during operation;
  - 4 that frequency adaptive systems shall be notified to the Bureau in accordance with the provisions of Article S11,

*invites ITU-R*

- 1 to pursue its studies on the subject (see, for example, Questions ITU-R 204-1/1, 147/9, 205/9 or 214/9) with a view to achieving optimum operational performance and compatibility;
- 2 to report on the results of these studies to a future WRC,

*instructs the Director of the Radiocommunication Bureau*

to make the necessary arrangements, as soon as practicable, for the notification of frequency assignments to adaptive systems and for their recording in the Master International Frequency Register, taking into account the studies already undertaken.

- 70 -

**RESOLUTION COM4-8 (WRC-97)**

**OPERATION OF GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM  
EQUIPMENT ON AND ASSIGNMENT OF MARITIME MOBILE SERVICE  
IDENTITIES (MMSI) TO NON-COMPULSORY FITTED VESSELS**

The World Radiocommunication Conference (Geneva, 1997),

*noting*

- a) that ships not required by international agreement to carry GMDSS equipment could elect to do so for safety purposes;
- b) that such vessels may only carry VHF Digital Selective Calling (DSC) equipment;
- c) that some administrations may not require operators on such vessels to have appropriate training, certification or licence;
- d) that not all administrations assign and register identities to users of VHF DSC on such ships,

*considering*

that VHF DSC false distress alerts are a problem for rescue coordination centres, particularly when incorrect identities are used, or when the radio is operated by persons untrained in its use,

*recognizing*

that administrations have different training requirements for users of VHF DSC equipment,

*resolves*

- 1 to invite the ITU-R to consider digital selective calling standards and operating procedures in order to simplify operation of this equipment;
- 2 to invite the ITU-T and ITU-R to review the process for assigning maritime mobile service identities for simplifying the process, taking into account cases of new installation, sale of the vessel or transfer of the equipment to a new ship;
- 3 to invite the ITU-T and ITU-R to undertake studies to ensure the registration and continuous accessibility and availability of identities to rescue authorities,

*instructs the Secretary-General*

to communicate this Resolution to the International Maritime Organization (IMO) for consideration and comments.

RESOLUTION COM4-9 (WRC-97)

**PROTECTION OF DISTRESS AND SAFETY COMMUNICATIONS ON THE  
FREQUENCIES 12 290 kHz AND 16 420 kHz FROM HARMFUL  
INTERFERENCE CAUSED BY THESE FREQUENCIES  
IF ALSO USED FOR NON-SAFETY CALLING**

The World Radiocommunication Conference (Geneva, 1997),

*noting*

- a) that the frequencies 4 125 kHz, 6 215 kHz, 12 290 kHz and 16 420 kHz are used for distress and safety communications as well as for non-safety calling by ships in radiotelephony in accordance with the provisions of Article S31 and S52.221 respectively;
- b) that considerable worldwide interference to distress and safety communications is experienced, especially on the frequencies 12 290 kHz and 16 420 kHz, due to ships being unable to monitor these frequencies before calling,

*noting further*

- a) that the recommended agenda for the 1999 World Radiocommunication Conference (WRC-99) includes an agenda item 2.4 for review of the channel arrangements in the HF bands for the maritime mobile service, taking into account the use of new digital technology;
- b) that consideration of this item by WRC-99 may result in making the frequencies 12 290 kHz and 16 420 kHz exclusive for distress and safety communications,

*recognizing*

that it is of vital importance for the safety of life at sea that distress and safety communications can be carried out without being hampered by harmful interference,

*resolves*

- 1 to urge administrations:
  - a) to move, where appropriate, their coast station calling frequencies from the channels 1221 and 1621 to any other suitable HF channel;
  - b) to request ships under their jurisdiction to refrain from using the frequencies 12 290 kHz and 16 420 kHz for non-safety calling;
- 2 to recommend that WRC-99 consider this subject,

*instructs the Secretary-General*

to bring this Resolution to the attention of the International Maritime Organization (IMO).

RESOLUTION COM4-10 (WRC-97)

**USE OF DIGITAL TELECOMMUNICATION TECHNOLOGIES IN THE MF AND HF  
BANDS BY THE MARITIME MOBILE SERVICE**

The World Radiocommunication Conference (Geneva, 1997),

*considering*

- a) that amendments to Article S52 of the Radio Regulations have been adopted by this Conference to provide for the use of digital telecommunication technology in the maritime HF telephony and A1A Morse bands;
- b) that there may be a need for consequential changes in Appendix S17 to reflect provisions made at this Conference for the use of digital telecommunications in the maritime HF telephony bands,

*considering further*

- a) that it would be desirable to extend the use of digital telecommunication technology to the maritime HF A1A Morse telegraphy bands as well;
- b) that these bands are significantly underutilized at present;
- c) that the requirement for use of new digital technologies in the maritime mobile service is growing rapidly,

*noting*

- a) that Resolution 720 of WRC-95 sets forth a preliminary agenda for WRC-99 that includes item 2.4 "Review of channel arrangements in HF bands for the maritime mobile service, taking into account the use of new digital technology";
- b) that use of the maritime HF A1A Morse radiotelegraphy bands is steadily diminishing with the result that administrations are already beginning to use these bands for digital telecommunication systems on a non-interference basis,

*resolves*

to recommend that WRC-99 make changes to Appendix S17 and Article S52, as needed,

*instructs the Secretary-General*

to bring this Resolution to the attention of the International Maritime Organization (IMO).

RESOLUTION COM4-11 (WRC-97)

**STUDIES REQUIRED TO PROVIDE PRIORITY TO DISTRESS  
COMMUNICATIONS ORIGINATED BY SHORE-BASED  
SEARCH AND RESCUE AUTHORITIES**

The World Radiocommunication Conference (Geneva, 1997),

*noting*

- a) that Article S53 provides priority for distress and safety communications which involves immediate access to the space segment;
- b) that distress and safety communications from shore-based search and rescue authorities will also be given priority access to the space segment;
- c) that when ships are communicating using their ship earth stations, these priority requests are not able to be completed without manual intervention using a manual procedure to clear all traffic to and from the ship,

*considering*

- a) that persons on board ships in distress or involved with a distress case may wish to use the ship earth station to notify friends, family and business associates on shore;
- b) that this could cause priority requests from rescue authorities to receive a busy signal;
- c) that unacceptable delays may be encountered in clearing all traffic to and from the ships manually,

*recognizing*

- a) that life and property may be lost if rapid access is not provided for distress related communications originated by the rescue authority;
- b) that the International Maritime Organization (IMO) has considered this problem and decided that provisions are necessary for giving priority to shore-originated distress communications;
- c) that Inmarsat is currently studying how to provide such priority communications,

*resolves to invite*

- 1 ITU-R to monitor the status of these studies and to develop suitable Recommendations;
- 2 IMO to develop requirements for priority communications for distress-related communications originated by shore-based search and rescue authorities and to submit these requirements to the next competent WRC,

*further invites the Council*

to place this Resolution on the agenda of a future competent world radiocommunication conference,

*instructs the Secretary-General*

to communicate this Resolution to IMO and the International Civil Aviation Organization (ICAO) for appropriate action and comment.



RESOLUTION COM4-12 (WRC-97)

**OPERATIONAL PROCEDURES FOR CANCELLING FALSE  
DISTRESS ALERTS IN THE GMDSS**

The World Radiocommunication Conference (Geneva, 1997),

*considering*

- a) that the SOLAS 1974 Convention, as amended, prescribes that ships subject to this Convention shall be fitted with GMDSS equipment as appropriate;
- b) that non-SOLAS vessels are also being equipped with GMDSS equipment;
- c) that the transmission and relay of false distress alerts is a significant problem within the GMDSS,

*noting*

that the International Maritime Organization (IMO) has developed similar operational procedures to cancel false distress alerts,

*resolves*

- 1 to urge administrations to take all necessary measures to avoid false distress alerts and to minimize the unnecessary burden on rescue organizations which occurs;
- 2 to urge administrations to encourage the correct use of GMDSS equipment, with particular attention to appropriate training;
- 3 to urge administrations to implement the operational procedures contained in the Annex to this Resolution;
- 4 that administrations should take any consequential appropriate action in this respect,

*instructs the Secretary-General*

to bring this Resolution to the attention of IMO.

ANNEX TO RESOLUTION COM4-12 (WRC-97)

**CANCELLING OF FALSE DISTRESS ALERTS**

If a distress alert is inadvertently transmitted, the following steps shall be taken to cancel the distress alert.

*1. VHF Digital Selective Calling*

- 1) Reset the equipment immediately;
- 2) Set to Channel 16; and
- 3) Transmit a broadcast message to "All Stations" giving the ship's name, call sign and maritime mobile service identity (MMSI), and cancel the false distress alert.

*2. MF Digital Selective Calling*

- 1) Reset the equipment immediately;
- 2) Tune for radiotelephony transmission on 2 182 kHz; and
- 3) Transmit a broadcast message to "All Stations" giving the ship's name, call sign and MMSI, and cancel the false alert.

*3. HF Digital Selective Calling*

- 1) Reset the equipment immediately;
- 2) Tune for radiotelephony on the distress and safety frequency in each band in which a false distress alert was transmitted (see Appendix S15); and
- 3) Transmit a broadcast message to "All Stations" giving the ship's name, call sign and MMSI, and cancel the false alert on the distress and safety frequency in each band in which the false distress alert was transmitted.

*4. Inmarsat Ship Earth Station*

Notify the appropriate rescue coordination centre that the alert is cancelled by sending a distress priority message by way of the same coast earth station through which the false distress alert was sent. Provide ship name, call sign and Inmarsat identity with the cancelled alert message.

*5. Emergency Position Indicating Radiobeacon (EPIRB)*

If for any reason an EPIRB is activated inadvertently, contact the appropriate rescue coordination centre through a coast station or land earth station and cancel the distress alert.

*6. General*

Notwithstanding the above, ships may use additional appropriate means available to them to inform the appropriate authorities that a false distress alert has been transmitted and should be cancelled.

RES COM4-13

(Not used)

RESOLUTION COM4-14 (WRC-97)

**SURVEY OF HF BROADCASTING TRANSMITTER AND RECEIVER  
STATISTICS AS CALLED FOR IN RESOLUTION 517 (Rev.WRC-97)**

The World Radiocommunication Conference (Geneva, 1997),

*considering*

- a) that Resolution 517 (Rev.WRC-97) provides for the replacement, by 31 December 2015, of double-sideband (DSB) emissions in the HF bands between 5 900 kHz and 26 100 kHz allocated to the broadcasting service;
- b) that Resolution 517 (Rev.WRC-97) resolves that the date in *considering* a) shall be periodically reviewed by competent future world radiocommunication conferences in the light of the latest available complete statistics on the worldwide distribution of SSB and other spectrum-efficient modulation technique transmitters and receivers;
- c) that ITU-R is studying Question ITU-R 217/10 "Digital Broadcasting in AM Bands" and Question ITU-R 224/3 "The Prediction of System Performance and Reliability for Digital Modulation Techniques at HF",

*noting*

- a) that Recommendation No. 515 (HFBC-87) recommended that new transmitters installed after 31 December 1990 be capable of operating in the SSB mode;
- b) that Recommendation No. 515 (HFBC-87) invited administrations to encourage receiver manufacturers to begin producing low-cost receivers capable of receiving DSB and SSB broadcasting emissions by 31 December 1990,

*recognizing*

- a) that there is insufficient information on the availability and use of HF broadcasting SSB transmitters and receivers;
- b) that broadcasters, unlike most users of other radiocommunication services, have no control over the receivers used by their listeners;
- c) that activity is continuing on the development of digital modulation systems for recommendation by ITU-R,

*resolves*

that the first survey of transmitter and receiver statistics called for in Resolution 517 (Rev.WRC-97) should be conducted as a matter of urgency, such that its results will be available to WRC-99 for consideration.

RESOLUTION COM4-15 (WRC-97)

**MEASURES TO SOLVE THE INCOMPATIBILITY BETWEEN BSS IN REGION 1 AND  
FSS IN REGION 3 IN THE FREQUENCY BAND 12.2 - 12.5 GHz**

The World Radiocommunication Conference (Geneva, 1997),

*considering*

- a) that the band 12.2 - 12.5 GHz is allocated on a primary basis to the BSS in Region 1 and FSS in Region 3;
- b) that both services should have equitable access to the orbit and spectrum;
- c) that at present, the procedures of Appendix 30 applicable to the FSS in Region 3 in respect of the BSS Plan in Region 1 are such that only the Plan assignments are protected, so that it could lead to situations where an FSS system could receive interference from a BSS system, or vice versa, but for which currently there are no regulatory provisions which require any type of coordination procedure to be undertaken;
- d) that several modifications to the Regions 1 and 3 BSS Plan, which have assignments in the band 12.2 - 12.5 GHz, have entered into the Plan by successfully applying the current Article 4 procedure, or are still applying the current Article 4 modification procedure. Some of these assignments have already been brought into use;
- e) that some Region 3 FSS systems are currently operating, or are under coordination, applying relevant provisions of the Radio Regulations,

*resolves*

- 1 that the Radiocommunication Bureau shall apply the criteria of Annex 4 to Appendix 30 to identify:
  - the BSS assignments in the 12.2 - 12.5 GHz frequency band, submitted under paragraphs 4.1a) or 4.1b) of Article 4 of Appendix 30, for which complete Annex 2 information has been received by the Bureau before 27 October 1997 and which are affected by Region 3 FSS networks for which complete Appendix 3 or Appendix S4 information, submitted under paragraph 7.2.1 of Article 7 of the same Appendix, has been received by the Bureau after the date of receipt of the above-mentioned Annex 2 information for BSS and before these modifications and additions have been included in the Regions 1 and 3 BSS Plan.
  - The Radiocommunication Bureau shall also identify the administrations whose assignments affect these BSS assignments in the 12.2 - 12.5 GHz frequency band;

2 that the Radiocommunication Bureau shall apply the criteria of Annex 1 to Appendix 30 and relevant Rules of Procedure to identify:

- the Region 3 FSS networks in the frequency band 12.2 - 12.5 GHz for which complete Appendix 3 or Appendix S4 information, submitted under paragraph 7.2.1 of Article 7 of Appendix 30, has been received by the Bureau before 27 October 1997 and which are affected by BSS assignments in the frequency band 12.2 - 12.5 GHz, submitted under paragraphs 4.1a) or 4.1b) of Article 4 of the same Appendix, for which complete Annex 2 information has been received by the Bureau prior to the date of the receipt of the above-mentioned Appendix 3 or Appendix S4 information but for which the date of inclusion of these modifications or additions in the BSS Plan is after the date of receipt of the above-mentioned Appendix 3 or Appendix S4 information.
- The Radiocommunication Bureau shall identify the administrations whose assignments affect the above-mentioned Region 3 FSS networks in the 12.2 - 12.5 GHz frequency band;

3 the administrations which have been identified by the BR in *resolves* 1 and 2 above shall make all possible mutual efforts to solve the interference problems.

NOTE 1 - The implications of this Resolution on the workload of the Bureau has to be taken into account.

NOTE 2 - Any retroactive application of this Resolution shall in no way have any implications regarding the status of assignments in both the BSS and the FSS as identified by the Bureau.

RESOLUTION COM4-16 (WRC-97)

**INFORMATION ON THE OCCUPANCY BY FIXED AND MOBILE SERVICES  
IN THE ADDITIONAL HF BANDS ALLOCATED BY WARC-92  
TO THE BROADCASTING SERVICE**

The World Radiocommunication Conference (Geneva, 1997),

*considering*

- a) that WRC-97, in response to Resolution 529 (WRC-95), did not recommend a date or dates by which the fixed and mobile services, in the additional HF bands allocated by WARC-92 to the broadcasting service, would no longer be protected, due to insufficient information on the current use of these bands by the fixed and mobile services;
- b) that the fixed and mobile services in use in each of the above-mentioned bands shall be protected until 1 April 2007;
- c) that Resolution 21 (Rev.WRC-95) established a procedure for the transfer of the fixed and mobile service assignments in the above-mentioned bands to other appropriate frequency bands;
- d) that it may be possible and desirable for the broadcasting service to use parts of the above-mentioned bands prior to 1 April 2007,

*resolves to instruct the Director of the Radiocommunication Bureau*

- 1 to present a report to CPM-99 and WRC-99, providing information gathered by means of consultation with administrations, on the occupancy by fixed and mobile services in each of the additional HF bands allocated by WARC-92 to the broadcasting service;
- 2 to provide to CPM-99 and WRC-99 any new information with regard to possible sharing between broadcasting and other services in the HF bands, together with the information already provided to WARC-92,

*urges administrations*

- 1 to provide to the Director of the Radiocommunication Bureau the information which would permit the action in *resolves* 1 and 2 to be carried out;
- 2 to submit to WRC-99 proposals with regard to the status to be given prior to 1 April 2007 to the broadcasting service in each of the additional HF bands, or portions thereof, allocated by WARC-92 to the broadcasting service.

RESOLUTION COM4-17 (WRC-97)

**PUBLICATION OF THE WEEKLY CIRCULAR INCLUDING SPECIAL SECTIONS**

The World Radiocommunication Conference (Geneva, 1997),

*considering*

- a) that the Weekly Circular and the Special Sections, as referred to in Articles S9 and S11 of the Radio Regulations, are currently published on paper, microfiche and diskette;
- b) that the form, content and periodicity of this publication need to be reviewed in order to improve its usability;
- c) that the IFL (International Frequency List) and the SRS (database of Space Radiocommunication Stations) are published every six months and the terrestrial plans are published on a yearly basis exclusively on CD-ROM;
- d) that significant improvements have been made in recent times in terms of cost reduction and availability of CD-ROM and CD-ROM readers;
- e) that large amounts of data may be more readily consulted if presented in an electronic format by using software;
- f) that the introduction of new technologies requires adaptation and appropriate training from a user's point of view, especially for developing countries;
- g) that information in electronic format could be used to fulfil administrations' database requirements,

*further considering*

- h) that the ITU budget makes provision for the distribution of one free copy of the Weekly Circular and the Special Sections to each administration;
- i) that the use of a CD-ROM format would significantly reduce the cost of publishing and distributing the Weekly Circular;
- j) that the use of electronic format is important for many administrations,

*resolves*

- 1 that the publication of the Weekly Circular and the Special Sections on paper and microfiche, as well on diskette, be migrated to a CD-ROM format, having regard to "resolves 4" of this Resolution;
- 2 that this publication be fortnightly;
- 3 that tests should be conducted in cooperation with all administrations before introducing the CD-ROM publication replacing the Weekly Circular, including the Special Sections, published on paper, microfiche and diskette;

4 that, following the successful completion of these tests and for an introductory period of a minimum of three months ending 1 January 1999, both the paper, microfiche and diskette format and the CD-ROM format should be provided in parallel;

5 that the search software to be made available on the CD-ROM should be capable of easily identifying and extracting to file Parts I, II and III of the Weekly Circular, the associated Special Sections for terrestrial and space assignments, as well as plan assignments;

6 that administrations are encouraged to discontinue usage of paper, microfiche and diskette as soon as possible and to inform the Radiocommunication Bureau accordingly,

*instructs the Director of the Radiocommunication Bureau*

1 to initiate the introduction of a CD-ROM format for the publication of the Weekly Circular including the Special Sections;

2 to consult with all the administrations during the testing phase of the new system;

3 to provide an index of Parts I, II, III and the Special Sections printed on paper, for those administrations requesting it;

4 to include in radiocommunication seminars appropriate training in the use of the CD-ROM format;

5 to make the data also available on TIES by remote electronic access on a subscription basis;

6 to set a reasonable price for the provision of additional copies of the CD-ROM,

*further instructs the Director of the Radiocommunication Bureau*

7 to consider an alternative name, if appropriate, for the Weekly Circular;

8 to report to the next world radiocommunication conference on the experience gained in the introduction of the CD-ROM format, with a view to making any necessary consequential amendments to the Radio Regulations,

*requests the Secretary-General*

to consider the provision of suitable software and/or hardware for the least developed countries requesting it.



RESOLUTION COM4-18 (WRC-97)

**PROVISIONAL APPLICATION OF CERTAIN PROVISIONS OF THE  
RADIO REGULATIONS AS MODIFIED BY WRC-97  
AND TRANSITIONAL ARRANGEMENTS**

The World Radiocommunication Conference (Geneva, 1997),

*considering*

- a) that as a result of the review under Resolution 18 (Kyoto, 1994), a number of provisions relating to the advance publication, coordination and notification of assignments for satellite networks have been modified and these should be applied provisionally as soon as possible;
- b) that it was decided to reduce the regulatory time-frame for bringing a satellite network into use, and to delete the advance publication information (API) if not followed by the coordination data within 24 months of the date of receipt of the API;
- c) that there are a number of satellite networks for which the relevant information has been communicated to ITU prior to the end of this Conference, and it is necessary to provide for some transitional measures for the treatment of this information by the Bureau,

*resolves*

- 1 that the provisions of Sections I, IA and IB of Article S9 and provisions of Article S11 (Nos. S11.43A, S11.44, S11.44B to S11.44I, S11.47 and S11.48), as revised by WRC-97, shall be applied by the Radiocommunication Bureau and by administrations on a provisional basis as of 22 November 1997;
- 2 that, for satellite networks which are subject to coordination for which the API has been received by the Bureau prior to 22 November 1997 but the coordination data has not been received by the Bureau prior to this date, the responsible administration shall have until 22 November 1999 or the end of the period pursuant to the application of No. 1056A of the Radio Regulations, whichever date comes earlier, to submit the coordination data in accordance with the applicable provisions of the Radio Regulations; otherwise the Bureau shall cancel the relevant API in accordance with No. 1056A or No. S9.5D as applicable;
- 3 that, for satellite networks for which the API has been received by the Bureau prior to 22 November 1997, the maximum allowed time period from the date of receipt of the API to bring the relevant frequency assignments into use shall be six years plus the extension pursuant to No. 1550 (see also Resolution GTPLEN2-1);
- 4 that the revised Appendix S4 with respect to the API for satellite networks which are subject to coordination under Section II of Article S9 shall be applied as of 22 November 1997;
- 5 that, for those networks which are subject to coordination for which the API has been received but not yet published prior to 22 November 1997, the Bureau shall publish only the information of the revised Appendix S4 as modified by WRC-97.